



INTRODUCTION TO MONTESSORI EDUCATION

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ABSTRACT

Montessori is a method of education that is based on self-directed activity, hands-on learning and collaborative play. In montessori classrooms children make creative choices in their learning, while the classroom and the teacher offer age-appropriate activities to guide the process. Children work in groups and individually to discover and explore knowledge of the world and to develop their maximum potential. Montessori is an innovative, child-centered approach to education, developed a century ago by a woman named Dr. Maria Montessori ahead of her time. Working with institutionalized and inner-city youngsters, Dr. Maria Montessori was struck by how avidly the children absorbed knowledge from their surroundings. Given developmentally appropriate materials and the freedom to follow their interests, they joyfully taught themselves. The goal of Montessori education is to foster a child's natural inclination to learn. Montessori teachers guide rather than instruct, linking each student with activities that meet his interests, needs, and developmental level. The classroom is designed to allow movement and collaboration, as it also promotes concentration and a sense of order. Unique learning materials beckon from accessible shelves, inviting small hands to take on new challenges, concept or skill at a time.

KEYWORDS :**What is Montessori method?**

Montessori education is an approach to that celebrates and nurtures each child's intrinsic desire to learn. Montessori education offers children opportunities to develop their potential as they step out into the world as engaged, competent, responsible, and respectful citizens with an understanding and appreciation that learning is for life. The tenets of montessori method are:

- **Each child is valued as a unique individual.** Montessori education recognizes that children learn in different ways, and accommodates all learning styles. Students are also free to learn at their own pace, each advancing through the curriculum as he is ready, guided by the teacher and an individualized learning plan.
- **Beginning at an early age, montessori students develop order, coordination, concentration, and independence.** Classroom design, materials, and daily routines support the individual's emerging "self-regulation" (ability to educate one's self, and to think about what one is learning), toddlers through adolescents.
- **Students are part of a close, caring community.** The multi-age classroom—typically spanning 3 years—re-creates a family structure. Older students enjoy stature as mentors and role models; younger children feel supported and gain confidence about the challenges ahead. Teachers model respect, loving kindness, and a belief in peaceful conflict resolution.
- **Montessori students enjoy freedom within limits.** Working within parameters set by their teachers, students are active participants in deciding what their focus of learning will be. Montessorians understand that internal satisfaction drives the child's curiosity and interest and results in joyous learning that is sustainable over a lifetime.
- **Students are supported in becoming active seekers of knowledge.** Teachers provide environments where students have the freedom and the tools to pursue answers to their own questions.
- **Self-correction and self-assessment are an integral part of the Montessori classroom approach.** As they mature, students learn to look critically at their work, and become adept at recognizing, correcting, and learning from their errors.

Given the freedom and support to question, to probe deeply, and to make connections, Montessori students become confident, enthusiastic, self-directed learners. They are able to think critically, work collaboratively, and act boldly—a skill set for the 21st century.

Review of related literature

Montessori parents know first-hand how this approach to education supports and nurtures children's development in all areas: physical, intellectual, language, and social-emotional. Scientific research confirms that montessori children have an advantage not only academically, but also in social and emotional development.

Dohrmann, K., (2003) in a longitudinal study of Milwaukee high school graduates found that students who had attended montessori

preschool and elementary programs significantly outperformed a peer control group on math and science scores. "In essence," the study found, "students attending a montessori program from the approximate ages of three to 11 predicts significantly higher mathematics and science standardized test scores in high school. . Rathunde, K., (2003) compared middle school students in Montessori programs with students in traditional middle schools, and found significantly higher student motivation and socialization among the montessori students. "There were strong differences suggesting that Montessori students were feeling more active, strong, excited, happy, relaxed, sociable, and proud while engaged in academic work. They were also enjoying themselves more, they were more interested in what they were doing, and they wanted to be doing academic work more than the traditional students." Lillard, A.S., (2005) in a comprehensive review of the scientific literature found that how current research validates Dr. Montessori's observations about how children learn, particularly with regard to movement and cognition, the detrimental effect on motivation of extrinsic rewards, the beneficial effect of order in the environment, and the academic and emotional benefits of freedom of choice. Lillard, A.S. and Else-Quest, N., (2006) compared Montessori students with students in other school programs, and found that 5-year-old children who completed the three-year cycle in the Montessori preschool program scored higher on both academic and behavioral tests than the control group. The study also found that 12-year-old Montessori students wrote more sophisticated and creative stories and showed a more highly developed sense of community and social skills than students in other programs. Donabella, M.A. and Rule, A.C., (2008) described the positive impact of montessori manipulative materials on four seventh grade students who qualified for academic intervention services because of previous low state test scores in mathematics. Pretest and posttest results of the four students indicated that all increased their understanding of multiplication. The results of an attitude survey showed students improved in enjoyment, perceived knowledge, and confidence in solving multiplication problems. . Diamond, A., (2010) discussed effective strategies for advancing academic achievement, and advises: "Programs that address the whole child (cognitive, emotional, social and physical needs) are the most successful at improving any single aspect – for good reason. For example, if you want to help children with academic development, you will not realize the best results if you focus only on academic achievement (though at first glance doing that might seem the most efficient strategy); counter intuitively, the most efficient and effective strategy for advancing academic achievement is to also nurture children's social, emotional, and physical needs." . Diamond, A. and Lee, K., (2011) To be successful takes creativity, flexibility, self-control, and discipline. Central to all those are executive functions, including mentally playing with ideas, giving a considered rather than a compulsive response, and staying focused. This review compares research results from various activities and curricula that have been shown to improve children's executive function, including computerized training, aerobic exercise, martial arts and mindfulness practices, and classroom curricula including Montessori education. In

a comparison of curricula and curricula add-ons, the montessori approach is shown to meet more criteria for the development of executive function for a more extended age group". Lillard, A.S., (2012) examined the impact of Montessori implementation fidelity. Her study found that children in classroom with high fidelity implementation showed significantly greater school- year gains on outcome measures of executive function, reading, math, vocabulary, and social problem-solving, than children in low fidelity or conventional classrooms.

Core Components of Montessori Education

While there are many components that are integral to quality Montessori implementation, the American Montessori Society recognizes 5 core components as essential in Montessori schools — properly trained Montessori teachers, multi-age classrooms, use of Montessori materials, child-directed work, and uninterrupted work periods. Fully integrating all of them should be a goal for all Montessori schools.

1. Properly Trained Montessori Teachers

Properly trained Montessori teachers understand the importance of allowing the child to develop naturally. They are able to observe children within a specific age range and introduce them to challenging and developmentally appropriate lessons and materials based on observations of each child's unique interests, abilities, and development (social, emotional, cognitive, and physical). In this way, the teacher serves as a guide rather than a giver of information. She prepares the classroom environment in order to support and inspire the developmental progress of each student and guide each child's learning through purposeful activity. A properly trained Montessori teacher is well versed in not only Montessori theory and philosophy, but also the accurate and appropriate use of Montessori materials. She has observational skills to guide and challenge her students, a firm foundation in human growth and development, and the leadership skills necessary for fostering a nurturing environment that is physically and psychologically supportive of learning. It is essential that Montessori teachers have training in the age level at which they teach. This training prepares the Montessori teacher to design a developmentally appropriate learning environment, furnished with specially-designed materials, where students explore, discover, and experience the joy of learning.

2. Multi-Age Classrooms

Multi-age groupings enable younger children to learn from older children and experience new challenges through observation; older children reinforce their learning by teaching concepts they have already mastered, develop leadership skills, and serve as role models. This arrangement mirrors the real world, in which individuals work and socialize with people of all ages and dispositions. Children from birth – age 3 may be grouped in varying multi-age configurations.

3. Use of Montessori Materials

A hallmark of Montessori education is its hands-on approach to learning and the use of scientifically designed didactic materials. Beautifully crafted and begging to be touched, Montessori's distinctive learning materials each teach a single skill or concept and include a built-in mechanism ("control of error") for providing the student with a way of assessing progress and correcting mistakes, independent of the teacher. The concrete materials provide passages to abstraction and introduce concepts that become increasingly complex.

4. Child-Directed Work

Montessori education supports children in choosing meaningful and challenging work of their own interest, leading to engagement, intrinsic motivation, sustained attention, and the development of responsibility to oneself and others. This child-directed work is supported by the design and flow of the Montessori classroom, which is created to arouse each child's curiosity and to provide the opportunity to work in calm, uncluttered spaces either individually or as part of a group; the availability and presentation of enticing, self-correcting materials in specified curricular areas; teachers who serve as guides and mentors rather than dispensers of knowledge; and uninterrupted work periods, as described below.

5. Uninterrupted Work Periods

The uninterrupted work period recognizes and respects individual variations in the learning process. During the work period, students are given time to work through various tasks and responsibilities at their

own pace without interruption. A child's work cycle involves selecting an activity, performing the activity for as long as s/he is interested in it, cleaning up the activity and returning it to the shelf, then selecting another activity. During the work period, teachers support and monitor the students' work and provide individual and small-group lessons. The uninterrupted work period facilitates the development of coordination, concentration, independence and order, and the assimilation of information.

Montessori Learning Materials:

Montessori Materials Are Appealingly Designed

Throughout the room, children will be sorting, stacking, and manipulating all sorts of beautiful objects made of a range of materials and textures. Many of these objects will be made of smooth polished wood. Others are made of enameled metal, wicker, and fabric. Also available to explore are items from nature, such as seashells and birds' nests. How can a preschool-aged child be trusted to handle fragile little items independently? Montessori teachers believe that children learn from their mistakes. If nothing ever breaks, children have no reason to learn carefulness. Children treasure their learning materials and enjoy learning to take care of them "all by myself." Montessori teachers make a point to handle Montessori materials slowly, respectfully, and carefully, as if they were made of gold. The children naturally sense something magical about these beautiful learning objects. As children carry their learning materials carefully with 2 hands and do their very special "work" with them, they may feel like they are simply playing games with their friends—but they are actually learning in a brilliantly designed curriculum that takes them, 1 step at a time, and according to a predetermined sequence, through concepts of increasing complexity.

Ingenious

Each learning material teaches just one skill or concept at a time. For example, we know that young children need to learn how to button buttons and tie bows. Dr. Montessori designed "dressing frames" for children to practice on. The frame removes all distractions and simplifies the child's task. The child sees a simple wooden frame with 2 flaps of fabric—1 with 5 buttonholes and 1 with 5 large buttons. His task is obvious. If he makes an error, his error is obvious. Built-in "control of error" in many of the Montessori materials allows the child to determine if he has done the exercise correctly. A teacher never has to correct his work. He can try again, ask another child for help, or go to a teacher for suggestions if the work doesn't look quite right. Materials contain multiple levels of challenge and can be used repeatedly at different developmental levels. A special set of 10 blocks of graduated sizes called "the pink tower" may be used just for stacking; combined with "the brown stair" for comparison; or used with construction paper to trace, cut, and make a paper design. The pink tower, and many other Montessori materials, can also be used by older children to study perspective and measurement. Montessori materials use real objects and actions to translate abstract ideas into concrete form. For example, the decimal system is basic to understanding math. Montessori materials represent the decimal system through enticing, pearl-sized golden beads. Loose golden beads represent ones. Little wire rods hold sets of 10 golden beads—the 10-bar. Sets of 10 rods are wired together to make flats of 100 golden beads—the hundred square. Sets of 10 flats are wired together to make cubes of 1,000 golden beads—the thousand cube. Children have many activities exploring the workings of these quantities. They build a solid inner physical understanding of the decimal system that will stay with them throughout school and life. Later, because materials contain multiple levels of challenge, the beads can be used to introduce geometry. The unit is a point; the 10-bar is a line; the hundred square a surface; the thousand cube, a solid. Montessori learning materials are ingeniously designed to allow children to work independently with very little introduction or help. The students are empowered to come into the environment, choose their own work, use it appropriately, and put it away without help.

Invite Activity

Maria Montessori believed that moving and learning were inseparable. The child must involve her entire body and use all her senses in the process of learning. She needs opportunities built into the learning process for looking, listening, smelling, touching, tasting, and moving her body. When a child looks at montessori materials, he is drawn to explore them with his senses.

"Grow" with the Child

Montessori materials are designed to follow the students throughout their education; they are like familiar faces greeting them in their new

classrooms as they advance. For example, exploring the “binomial cube”—made up of 8 red, black, and blue cubes and prisms—the early childhood student develops visual discrimination of color and form. The elementary child labels the parts to explore, concretely, the algebraic formula $(a+b)^3$. The upper elementary child uses the binomial cube as the foundation for work with more advanced materials to solve algebraic equations.

Invite Discovery

Montessori-structured lessons are the “work” or procedures for each set of materials. A teacher may give a lesson to a child or small group of children, another child may give a lesson, a child may learn how a lesson works by watching others, or a child may explore certain types of materials freely. For a young child, the Montessori-structured lesson may be silent and may be only a few moments long. This lesson models a method for laying work on a mat or table in an orderly fashion. The lesson helps children develop work habits, organization skills, and general thinking strategy, but it never teaches children the answers. Teaching children the answers steals their chance to make exciting discoveries on their own—whether the child is a baby wondering “Can I reach that rattle?,” a preschooler contemplating “Why did this tower of cubes fall down?,” an elementary school student pondering “When you divide fractions, why do you invert and multiply?,” or a high school student puzzling “How does city council operate?” For students of every age, the Montessori environment offers the tools to discover the answers to their own questions. The teacher is their trusted ally and the learning materials are their tools for discovery, growth, and development. The teacher stays with the students for the entire span of their multi-age grouping, usually 2 or 3 years, nurturing each child’s development over that extended span of time.

Elementary and high school materials build on the earlier Montessori materials foundation. Because older students have built a solid foundation from their concrete learning, they move gracefully into abstract thinking, which transforms their learning. Now they learn how to carry out research. At these upper levels, students broaden their focus to include the community and beyond. They learn through service and firsthand experience. The Montessori materials support responsible interactive learning and discovery.

Classroom Design

Beautiful, inviting, and thoughtfully arranged, the room embodies each element of Maria Montessori’s revolutionary approach. Natural lighting, soft colors, and uncluttered spaces set the stage for activity that is focused and calm. Learning materials are displayed on accessible shelves, fostering independence as students go about their work. Everything is where it is supposed to be, conveying a sense of harmony and order that both comforts and inspires. In this safe and empowering environment, students find joy in learning. The design and flow of the Montessori classroom create a learning environment that accommodates choice.

Montessori Learning Materials

A hallmark of Montessori education is its hands-on approach to learning. Students work with specially designed materials, manipulating and investigating until they master the lesson inside. Beautifully crafted and begging to be touched, Montessori’s distinctive learning materials are displayed on open, easily accessible shelves. They are arranged (left to right, as we read in Western languages) in order of their sequence in the curriculum, from the simplest to the most complex. Each material teaches a single skill or concept at a time—for example, the various “dressing frames” help toddlers learn to button, zip, and tie; 3-dimensional grammar symbols help elementary students analyze sentence structure and style. And, built into many of the materials is a mechanism (“control of error”) for providing the student with some way of assessing her progress and correcting her mistakes, independent of the teacher. The concrete materials provide passages to abstraction, and introduce concepts that become increasingly complex. As students progress, the teacher replaces some materials with others, ensuring that the level of challenge continues to meet their needs.

The Teacher as “Guide”

The Montessori teacher, child, and environment may be seen as a learning triangle, with each element inextricably linked, and a vital part of the whole. The teacher thoughtfully prepares a classroom environment with materials and activities that entice her students to learn. She may guide her students to new lessons and challenges, but it

is the child’s interaction with what the environment has to offer that enables learning to occur. Because the teacher is not meant as the focus of attention, he can often be difficult to spot.

Multi-Age Groupings

A Montessori class is composed of students whose ages typically span 3 years. Ideally, members stay with the class, and teacher, for the entire cycle, forging a stable community and meaningful bonds. It is common to see students of different ages working together. Older students enjoy mentoring their younger classmates—sometimes the best teacher is someone who has recently mastered the task at hand. Younger students look up to their big “brothers” and “sisters,” and get a preview of the alluring work to come.

A Caring Community

The Montessori classroom radiates harmony and respect. Members address each other respectfully and in modulated tones. There are no raised voices; no rude or hurtful behavior. There is a busy hum of activity, yet also a profound respect for silence. Students show grace and courtesy, and an interest in the welfare of others. “Let me help!” is a common classroom refrain. Students work together as stewards of their environment. They take turns caring for classroom pets and plants; do their part to maintain order, such as by returning materials to the shelves after use; and help keep outdoor spaces groomed and litter-free. How to live in community, to learn independently, to think constructively and creatively: These are the lessons of the Montessori classroom that remain with its students as they make their way in the world.

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